

REMARKS

Claims 1-4 and 6-9 are pending in this application. By this Amendment, claims 1-3 are amended, claim 5 is canceled, and claims 6-9 are added.

I. The Claims Define Patentable Subject Matter

Claims 1-5 are rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 6,550,441 to Drangel et al.; and claims 1-5 are rejected under 35 U.S.C. §103(a) as unpatentable over JP 7-26981 to Miyai in view of DE 2404231. These rejections are respectfully traversed.

The applied art does not teach, disclose or suggest actuating the compression ratio varying mechanism to drive at least one of a piston head and a crank casing against a combustion pressure, so as to vary a volume of the combustion chamber in order to vary the compression ratio, producing a pressing force which is to be applied to the piston head and crank casing according to the driving state of them in the course of actuation of the compression ratio varying mechanism, and applying the pressing force to the piston head and the crank casing to reduce a transmission torque to thereby assist the varying mechanism to vary the compression ratio, as claimed in claim 1 and similarly claimed in claim 2.

Instead, Drangel discloses a tilt mechanism 10 shown in Figure 1 which includes lugs 24 connected to cylinder receiving part 6 and form brackets for axle 26 on which connection members 28 are mounted. The lower ends are mounted on axle sections 30 of axle 32 with larger bearing sections 34 rotatably mounted in brackets of the lugs 36 of crankcase part 2. A rotation of the axle 32 generates a change in distance between upper hinge axle 26 and axle section 30 and thus, via the connection member 28, a sideways tilting/inclination of the cylinder-receiving part 6 in relation to crankcase part 2 is created. The part 6 includes four cylinders 12. Thus, the compression change in the cylinders is obtained in this way. As such, the piston head or crank casing does not move along the axis line of the cylinder.

The embodiment of Drangel shown in Figures 2 and 3 shows that in both the axle bearing 8 and tilt mechanism 10, pre-stressing members 38 are arranged between the crankcase part 2 and cylinder-receiving part 6. The pre-stressing members 38 are in the form of springs which continually press the engine parts 2 and 6 apart so that existing bearing play in the tilt axle bearing 8 and tilt mechanism 10 is eliminated in the direction generated by the action of the combustion gases in the cylinders. The combustion gases in the combustion chambers seeks to move the cylinder-receiving part 6 upwards and away from crankcase part 2. Again, as discussed previously, the piston head or crank casing does not move along the axis line of the cylinder.

Accordingly, the features as discussed above with respect to the independent claims are not shown, taught or suggested in the applied art. As discussed above, Drangel includes pre-stressing members 38 arranged between the crankcase part 2 and the cylinder-receiving part 6. The pre-stressing members 38 are powerful compression springs which include inherent predetermined tensioning which seek to continually press the engine 2 and 6 apart so that existing bearing play in the tilt axle bearing 8 and tilt mechanism 10 is eliminated in the direction generated by the action of the combustion gases in the cylinders.

Neither Miya or DE 2404231 makes up for the deficiencies of Drangel discussed above. Specifically, Miyai discloses a crankcase 4 and cylinder block 13 connected to each other by compression ratio changing camshafts 23 and 24. Both camshafts include a small diameter part 26 to be rotatably fitted to the cam holders formed on lower ends of the cylinder block 13 and the large diameter part 28 to be fitted to the cam holders formed on the upper ends of crankcase 4. Both camshafts 23 and 24 are eccentric cams and the center of the small diameter part 6 is horizontally and outwardly offset to the center of the large diameter part 28. When the camshafts 23 and 24 are rotated, the cylinder block 13 is moved up and down in

relation to crankcase 4. Reference DE 2404231 discloses a spring 5, as shown in Figure 3 formed to be connected to the cylinder block and crankcase.

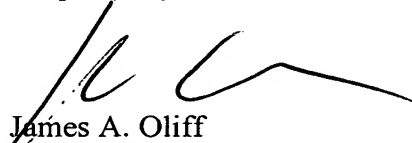
Accordingly, withdrawal of the rejection of the claims under 35 U.S.C. §102 and §103 is respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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